

Introduction to Engineering™ (IED)

This course introduces students to the engineering design process. They develop their engineering portfolio that will follow them through all the courses. Working in teams they learn how to use sketching as a means to communicate their ideas as well as the geometry that is used in parametric modeling, assembly, and motion constraints. They explore the production and marketing of products.

Principles of Engineering™ (POE)

This course covers the different types of engineering, the communication and documentation that are used by engineers. Mechanisms, thermodynamics, fluid systems, electrical systems and control systems are also covered. Using the appropriate formulas students make static and strength calculations for various materials before testing them. They explore the fields of reliability engineering and kinematics.

Digital Electronics™ (DE)

This course covers the fundamentals of analog and digital electronics. Students learn about the different number systems used in the design of digital circuitry. They design circuits to solve open ended problems, assemble their solutions, and troubleshoot them as necessary. Simplification of Boolean expressions, application of truth tables, and Kmapping techniques are also covered. Students then use combinational logic, integrated circuits, and microprocessors to solve open ended problems.

Aerospace Engineering™ (AE)

This course exposes students to the world of aeronautics, flight, and engineering. Students working in teams are engaged in engineering design problems related to aerospace information systems, astronautics, rocketry, propulsion, the physics of space science, space life sciences, the biology of space science, principles of aeronautics, structures and materials, and systems engineering.

Engineering Design & Development™ (EDD)

This course is the capstone research and development course. Students working as individuals or on teams draw from all their previous experiences in the other engineering courses. They select a problem, design a solution, conduct patent research, build a prototype, conduct testing of the prototype, evaluate the test results, and present their conclusions to an engineering panel. The project is a yearlong course that involves guided independent research by the teacher and engineering/industry mentors. Many students go on to register their solutions with the United States Patent Office.

Standards – Driven: National Mathematics, Science, English Language Arts, and Technology Education

The project- based curriculum challenges students of all ability levels to use mathematics, scientific and technological principles in solving real-world problems. Students who complete the program will:

- Understand technology as a tool for problem-solving
- Understand the scientific process, problem solving in engineering and the application of technology in engineering
- Be prepared for the rigor of college-level programs in engineering or engineering technology
- Understand technological systems and how they interact with other systems
- Apply appropriate technological systems in analyzing and solving problems
- Use mathematical principles to solve problems
- Communicate effectively through reading, writing, listening and speaking
- Work well with others in teams

Project Lead the Way Curriculum at Merritt Island High School

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*the opportunity to earn college credits while in high school!

*the chance to prepare for post-secondary education and the workforce today!